Strategic Significance of the Market Engineering Forecast

The Market Engineering forecast can have a significant impact on the business in several areas. Therefore, it should be integrated into business planning, strategy development, and decision making.

Figure 2-2 illustrates the strategic significance of the Market Engineering forecast.

FIGURE 2-2

Total Wireline Card Calling Services Market: Strategic Significance of the Market Engineering Forecast (U.S.), 2000

Item	Significance
1	Helps gauge timing and size of research and development investments
2	Informs sales force of how fast to gear up or down
3	Supports investment decisions
4	Helps allocate management attention and talent
5	Impacts on business planning process
6	Serves as a credibility check against internal company forecasts
7	Helps create the company's own forecasts
8	Supports acquisition strategies
9	Creates timing strategies for new product development
10	Assists in allocation of investments to marketing tools
11	Helps production departments plan future needs
12	Supports companies in financial and cash flow planning

Source: Frost & Sullivan

Judging Credibility and Accuracy of Market Engineering Forecasts

Frost & Sullivan forecasts integrate the key elements that typically have an impact on market growth and size. No one can consistently make accurate forecasts, but market research has a proven track record in making accurate projections of market trends and growth rates.

The key test of credibility is whether the analyst team integrated all the critical elements of the market into the forecast. If all the elements that create a credible forecast are included in the analysis, then the forecast has strong credibility.

The accuracy of a forecast to within a 10 percent range over a seven-year period is not vitally important. What is important is that the overall trend be forecast correctly, because the

overall trend drives the appropriate strategy and subsequent decisions. The Market Engineering forecasting methodology has consistently proved an accurate and reliable forecasting tool, particularly for high-technology and industrial markets.

Over the past 35 years, Frost & Sullivan has had an impressive track record in forecasting emerging markets, new technologies, and shifts in existing markets. Unexpected events have always significantly changed the marketplace, but these do not occur often, and they typically merely delay the development of the market rather than destroy it.

Frost & Sullivan always advises clients that its forecasts should not be the exclusive basis for decision making at their companies. It should be one more source of input and a support tool for their own work in investigating the market and creating a winning strategy.

In the final analysis, decision making is based on the general trend of the forecast, not its absolute accuracy. Growth rate forecasts tend to fall into one of the following categories:

- Fast growth: 25 to 50 percent a year
- Medium growth: 5 to 25 percent a year
- No growth: 0 percent a year
- Medium decline: 5 to 25 percent a year
- Fast decline: 25 to 50 percent a year

It is important to accurately determine the range of the forecast, because that will have the greatest impact on the investment or strategy decision. Typically the decisions revolve around questions such as:

- Should the company enter the market?
- Should the company increase or decrease its investment?
- Should the company improve its performance in the market?

These decisions do not require accuracy within a few percentage points. They require accuracy in the determination of the general trend category. All business decisions carry some risk. Market Engineering increases the probability that the decisions will be correct, but it does not eliminate all risk.

Forecast Assumptions

Frost & Sullivan forecasts the world markets for goods and services by providing independent and economically unbiased information. Frost & Sullivan uses specific assumptions that support the forecasts in research reports.

Indexes are essentially an attempt to summarize masses of data, showing general changes over time. In developing forecasts, Frost & Sullivan analysts use those indexes that can have a direct correlation to the behavior of markets.

The use of and reliance on specific indexes can vary according to the scope of the research study and the specific client needs. The following list illustrates the sources used for key indicators in all Frost & Sullivan publications, unless otherwise stated.

consumer price index (CPI): The rate of increase/decrease in prices for consumer goods. Source: the Statistical Abstract of the U.S., Bureau of Labor Statistics (BLS).

gross domestic product (GDP): The total output of goods and services produced by labor and property in the United States. Source: the Survey of Current Business by the Bureau of Economic Analysis (BEA).

gross national product (GNP): The GDP plus income derived from U.S. labor and property operating abroad. Source: BEA.

inflation: A general rise in prices for goods and factors of production. It is indicated by various barometers: CPI, producer price index, Dow Jones, commodity spot price index, employment cost index.

producer price index (PPI): The average change in price received by producers of all U.S.-produced commodities at all stages of processing. Source: BLS.

factory inventories: A measure of the amount of product residing in warehouses or along the distribution channel. Shrinking inventory may signal diminishing supply, increasing demand, rising prices, or more efficient distribution methods. Rising inventories may suggest the opposite. Source: U.S. Bureau of the Census, Current Industrial Reports.

population: Census figures used for sizing potential consumer markets. Source: U.S. Census Bureau, the Statistical Abstract of the U.S.

interest rates: Used to forecast the cost of borrowing money for expansion or capital investments. They are set by the Federal Reserve Bank.

The standard economic assumptions for forecasting include the behavior that specific industries exhibit in relation to these indexes. As an example, the market for the construction of heating systems has historically trailed the market for new construction by a few months. Therefore, the accuracy of some forecasts can be increased by understanding and following the appropriate indexes.

Frost & Sullivan research can provide timely measurement information on market position and related trends, providing the basis for the forecast. This is often achieved through an understanding of the economic models and conditions that have a potential impact on market development.

Once market data is collected and analyzed, and the forecasts are developed, the forecasts are matched to the appropriate leading economic indicators for each specific industry. Analyst teams check the relationship to the economic indicators as part of the overall Frost & Sullivan quality control process.

GLOSSARY OF TERMS

List of Definitions

1+ call: A toll call in which the caller dials 1 followed by a ten-digit (in the United States and Canada) phone number. Calls are billed to the originating telephone. Also referred to assent-paid calls in the case of a pay phone call.

Access charges: Charges paid by IXCs to LECs for the origination and termination of long distance transmission services. The FCC and state regulatory commissions as part of the agency's review of LEC interstate and intrastate tariffs regulate access charges. The FCC announced interim changes to certain interstate access charges (local transport charges) in 1993, which allow the largest long distance carriers to pay flat rate transport charges to the local telephone companies (telcos) for the use of local facilities to originate and terminate long distance calls. Access charges have decreased in recent years.

Call processor: Refers to a multifunction system that resides on the customer's premises, and provides automated operator and other telecommunications-related services. A call processor performs automated operator services, and enhances the private branch exchange (PBX) with automated message delivery, voice mail, and automated third-party billing services.

Calling cards (issued by IXCs, OSPs, and LECs): Calling cards are used to bill calls when the end-user is traveling or away from home or the office. Calling cards offer an increasing array of enhanced services that are overtaking operator services in the placement and billing of calls.

Central office: Location of telephone switching equipment at which customer's lines are terminated and interconnected. Also refers to a switching center that provides local access to the public network.

Collect calling: A type of calling whereby a caller uses an operator to reach a party that then pays for the call. MCI introduced 1-800-COLLECT to this market, which was based on the same principle of called-party billing, but at sharply reduced rates.

Common carrier: Government-regulated, private company that furnishes the general public with telecommunications services and facilities.

Dedicated access: Connection between a customer's premises and a long distance carrier. All transmissions on this dedicated line are automatically routed to the carrier. Provided by a local phone company, alternate access carrier, or long distance carrier.

Dedicated lines/leased lines: Telecommunications lines reserved for use by particular customers along predetermined routes (in contrast to lines within the LECs' public switched network, which are available to all). Dedicated lines/leased lines make up private networks.

Default carrier: Generic name given to the long distance carrier that carries the traffic of customers not presubscribed to an IXC.

Dial-around: The process by which callers access a provider other than the one presubscribed to a telephone or vertical market location.

Divestiture: On January 8, 1982, AT&T signed a Consent Decree with the U.S. Department of Justice. It stipulated that as of January 1, 1984, AT&T would divest itself of its 22 telephone operating companies, which were formed into seven regional holding companies of roughly equal size. The FCC's decision mandated that regional Bell operating companies (RBOCs) provide all long distance carriers access arrangement equal in type, quality, and price to the access provided to AT&T.

Equal access: Concept made law by the 1984 Modified Consent Decree that all long distance carriers must have the same access to local facilities that AT&T enjoys. Arrangement whereby the RBOCs provide trunk-side connections to an end office, automatic number connection, answer supervision, dial pulse, or DTMF signal recognition. Also refers to the process that permits customers to subscribe to the long distance carrier of their choice.

Exchange access service: The link provided by LECs between a customer's premises and the transmission facilities of other telecommunications carriers (typically inter-LATA carriers). Services include switched access and special access services.

Exchange telecommunications service: Transmission of telecommunications within geographical areas identified as Local Access Transport Areas (LATAs). Each of these LATAs marks territory within, which a former Bell System LEC may offer service. Exchange telecommunications services include long distance service in addition to local service within LATAs, switched local residential and business services, private line voice and data services, Wide area telephone service (WATS), long distance, and CENTREX services.

Information services: Information such as news, weather, finance, and sports provided through wireline and wireless networks.

Inter-LATA: Telecommunications services that originate in one and terminate in another Local Access Transport Area (LATA). Under provisions of divestiture, the RBOCs cannot provide inter-LATA service. However, they may provide intra-LATA service. Some LATAs are large, so some LECs are able to provide intra-LATA long distance service.

Intra-LATA: Telecommunications services that originate in and end in the same Local AccessTransport Area (LATA).

Intrastate toll service: A long distance service.

Intrastate: Remaining entirely within the boundaries of a single state and therefore falling under the jurisdiction of that state's telephone regulatory procedures.

Local loop: Communications lines/services between the telephone subscriber and the phone company switching center.

Long distance: Telephone calls to locations beyond the local service area.

Portability 800: Result of FCC ruling to provide equal access for 800 numbers. As part of the ruling, certain call set-up time (access) standards were mandated. As a result, end users are able to change long distance carriers without changing their 800 number.

Prepaid calling card: Refers to a type of calling card gaining in popularity. These cards are purchased with a set amount of calling time, and are accessed by dialing an access code. Alternatively, some debit cards contain computer chips or magnetic strips that can be read by certain telephones.

Presubscribed: Refers to an end user or customer who has subscribed to a provider for operator, card calling, and other services. A telephone may be presubscribed to a particular carrier, which is then the primary interexchange carrier. All other carriers must be accessed through a code or 800 number.

Price regulation: New form of regulation that limits prices customers pay for basic telephone services. An older form of regulation, called rate-of-return, focused on profits instead.

Private line: Point-to-point telephone line for the exclusive use of one party. A leased, owned, or otherwise dedicated channel. The channel and channel equipment furnished to an end user as a unit for exclusive use without interexchange switching arrangements.

Public switched network: The portion of the local telephone company's network available to all end users generally on a shared basis (not dedicated to a particular end user).

Smart phone: A microcomputer-controlled electronic telephone with many enhanced features, including multiple billing options and calling/credit card validation procedures carried out in the terminal.

Surcharge: An access charge that is charged by many card service providers for the first minute of every call in addition to the per minute charge.

Switched telephone services: Switches are digital computerized routing facilities that receive calls, route calls through transmission lines to their destination, and record information about their source, destination, and duration. Switches have limits on their capacity to handle and transmit calls but generally can be upgraded to handle more calls as traffic

increases. Digital fiber-optic transmission cable has almost unlimited capacity for voice and data communications.

Switched traffic: Traditionally refers to telecommunications traffic along the public switched network. Increasingly being used with reference to voice, video, or data.

Switchless resellers: Resellers buy and resell minutes on other carriers' digital fiber-optic networks.

Trunk: Group of circuits that carry traffic in and out of the switch.

Wireless Technologies: Voice, data, and video communications that use radio frequencies rather than wires for transmission. Includes cellular, paging, and personal communications services.

Wireline: FCC regulations stipulate that providers of cellular telephone service in any given market be restricted to one wireline company (typically the LEC) and one non-wireline carrier other than the LEC.

List of Acronyms

ANI (Automatic number identification): A feature that sends a calling party's telephone number over the network to the called party.

CAP (Competitive Access Provider): An organization that competes with the established telecommunications provider in an area.

CDR (Call detail record): Computer record containing data unique to a specific call. It contains such details as originating switch, terminating switch, call length, and time of day. It also contains pertinent customer data such as start time, elapsed time, number dialed, and date.

CIID (Customer-issued identifier card): Cards that contain an account number that cannot be validated or billed to carriers other than AT&T.

CLEC (Competitive Local Exchange Carriers): These companies compete with local telephone companies to offer private-line and special access traffic by connecting business customers to long distance carriers. CAPs (Competitive Access Provider) began to compete with the local telcos in 1993 when the FCC opened the local market to competition, causing the special access market to be opened up to competition at the interstate level.

CPE (Customer premises equipment): The telecommunications equipment located on a customer's premises. Usually refers to equipment including key systems, private branch exchanges (PBXs), and telephones.

FCC (Federal Communications Commission): FCC jurisdiction includes interstate services and related matters. The FCC prescribes a uniform system of accounts for telephone companies, interstate depreciation rates, and the principles and standard operating procedures used to separate plant investment, expenses, taxes, and reserves between those applicable to interstate services under the jurisdiction of the FCC and those under the jurisdiction of state regulatory authorities. These are referred to as "separation procedures." The FCC also prescribes procedures for allocating costs and revenues between regulated and unregulated activities.

ILEC: Incumbent Local Exchange Carriers.

ITSP: Internet Telephony Service Provider.

IXC (Interexchange carrier): Any carrier that carries traffic between two or more local exchanges. AT&T, MCI, Sprint, and LDDS WorldCom are the largest IXCs in the United States. The largest IXCs in the United States are AT&T, Sprint, and MCI. Others include second-tier carriers and specific independent local exchange carriers. IXCs provide long distance services between LATAs and within LATAs. IXCs are permitted to compete for intrastate and intra-LATA long distance traffic in many states. IXCs are long distance companies.

LATA (Local Access Transport Area): The geographic area that is the domain of the local exchange carrier. A LATA is generally centered on a city or based on another identifiable geographical area. Regional Bell operating companies are generally precluded from carrying traffic across LATA boundaries. This traffic must be handled by a long distance carrier.

LECs (Local exchange companies): These companies include the regional Bell operating companies (RBOCs) and independent local exchange carriers that provide local telephone service, local access services, and short-haul toll service. LECs provide basic telecommunications services, hooking up customers to the network, providing switched and non-switched local telephone services, and connecting customers in their territories with long distance carriers. Some companies may also provide intrastate toll service and related services such as operator services. These local markets are dominated by the RBOCs, the subsidiaries of the Bell holding companies created by AT&T's divestiture. Other participants are the more than 1000 independent telcos, the largest of these being GTE.

MSA (Metropolitan statistical area): Federally defined geographic area consisting of a large population nucleus and surrounding communities with linkages to this nucleus.

MTS (Message telephone system): Generic name for switched long distance service offered by all long distance carriers. Also an offering for which a charge is made in accordance with a measured amount of usage, referred to as message Subscribers. Also called measured telephone service or direct distance dialing (DDD).

PBX (Private branch exchange): One of the more important pieces of equipment vertical market locations need to build a package of operator services. The PBX performs various functions, including acting as a switch to permit the property to receive incoming calls. Some PBXs offer call-control and call-accounting features. PBXs route all calls from telephones in businesses, hotels, and airports to the local telephone company. These operator services are operated by traditional long distance companies and alternative operator services (AOS).

PIC (Primary interexchange carrier): The IXC presubscribed to a telephone, customer, or caller. The caller must dial around to all other IXCs.

PIF (Proprietor-imposed fees): Surcharges levied by site owners on end users of operator and card calling services.

PIN (Personal identification number): This term originated with AT&T and refers to the last four digits of a calling card code.

RBOC (Regional Bell operating company): Subsidiaries of the Bell regional holding companies (RHCs), which include Bell Atlantic, Ameritech, U S West, SBC, and BellSouth.

SS7 (Signaling System #7): Sophisticated network signaling system that uses out-of-band signaling where signaling information is sent over a separate channel than the call itself. Improves call processing set-up times and frees circuits for voice, data, and video transmissions.

5

Market Engineering Research for the U.S. Wireline Post-Paid Calling Services Market 1996-2006

Total Market Segment Analysis

Market Overview and Definitions

In the forecast period (2000-2006), the U.S. traditional or proprietary calling cards market will decline in both revenue and minute volume. Any potential growth from new customers entering the card calling market will be overwhelmed by the loss of an increasing percentage of customers to prepaid cards, personal 800 numbers, and wireless technology. The companies in this market include inter-exchange carriers (IXCs), local exchange carriers (LECs), and competitive local exchange carriers (CLECs). The major players in this market are AT&T, MCI WorldCom, and Sprint.

U.S. post-paid card calling services are defined as having three attributes:

- Local and long distance card calls by means of a dial around toll free number and card access number or a card only public telephone with card reader equipment.
- Use of a personal identification number (PIN) or other security measure to access service from any domestic location.
- Billed to customer's telecom service or credit card account on a post pay basis.

Post-pay card products are bundled with residential long distance service, stand-alone products, or a feature of a credit card. If the card is bundled with long distance service, charges for calls placed with card access are added to the customer's regular monthly long distance or local telephone billing statement. Credit card companies bill long distance service to a customer's regular monthly bill.

Units in the market are defined as the number of minutes billed to post-paid cards. Revenues in the market are defined as all revenues accountable to traditional card calling services, including per minute and surcharge per call revenue streams.

U.S. Post-Paid Wireline Card Calling Products

Traditional or Proprietary Cards

Traditional post-paid cards are provided to consumers with their long distance service or as stand-alone products. These card-calling products may be used for both domestic and international calling with variable rates depending on call destination. Surcharges and fees can include a monthly fee of $1.00 to $4.00. Examples include Sprint's *International FONCARD* and AT&T's *CALL ATT calling card.*

An alternative is a flat rate card with a monthly fee. AT&T's *One Rate Card* charges a flat $0.25 for domestic calls with a $1.00 monthly fee.

Credit Card Calling

Representing a small percentage of the total post-paid card calling market, credit card calling services are provided by commercial credit card issuers, financial institutions, and telecommunications carriers. Leading participants include AT&T and American Express. In response to declining revenues and increased competition, these market leaders have restructured their credit card calling options, eliminating surcharges for domestic credit card calling, decreasing per minute charges, and/or linking credit cards with traditional card products.

Revenues in the credit card segment of the calling card services market have declined due to customer awareness of the high cost per minute compared to traditional and prepaid calling cards. Also, many consumers are unaware that a credit card can be used to pay for telephone services at point of payment. This lack of consumer awareness further decreases revenues in this segment.

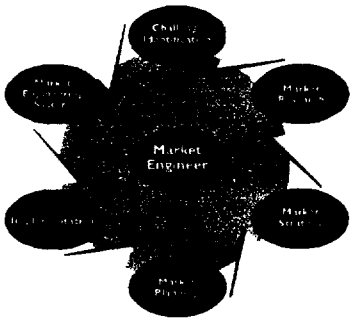
Market Engineering Research Measurement System

Chart 5.1 presents the Market Engineering measurements for the U.S. wireline post-paid card calling services market.

CHART 5.1

Wireline Post-Paid Card Calling Services Market: Market Engineering Measurements (U.S.), 1999

Market Engineering Drives Market Strategy and Planning



Measurement Name	Measurement	Trend
Market age	Maturity	---
Revenues	$7.00 billion	Stable
Future market size	$5.73 billion	Decreasing
Base year market growth rate	2.4%	Stable
Forecast period market growth rate	-2.5%	Decreasing
Number of Minutes	14.29 billion	Decreasing
Future number of minutes	13.32 billion	Decreasing
Saturation (current/potential minutes)	107.3%	Decreasing
Average price (per minute)*	$0.461	Increasing
Price range (U.S. domestic per minute)**	$0.05 to $0.95	Increasing
Price range (U.S. international per minute)**	$0.35 to $3.55	Increasing
Average surcharge (U.S. domestic, per call) ***	$0.301	Increasing
Average surcharge (U.S. international, per call) ***	$0.85	Increasing
Price Sensitivity	5	Stable
Competitors (active market competitors in base year)	400+	Stable
Degree of competition (1=low, 10=high)	7	Stable
Rate of technical change (1=low, 10=high)	4	Increasing
Customer satisfaction (1=low, 10=high)	8	Stable
Customer loyalty (1=low, 10=high)	8	Stable
Market concentration (percent of base year market controlled by top three competitors)	83%	

*Average price includes surcharges and fees prorated over average domestic and U.S. origination international call duration.
**Price range does not include surcharges and fees. This is an indicator of the range of advertised prices per minute in the market for the base year (1999).
***Does not include federally mandated pay telephone surcharge.

Source: Frost & Sullivan

Market Engineering Unit and Revenue Forecasts (1996-2006)

Figure 5-1 presents the drivers for the U.S. post-paid wireline card calling services market.

FIGURE 5-1

Post-Paid Wireline Card Calling Services Market: Market Drivers Ranked in Order of Impact (U.S.), 2000-2006

Rank	Driver	1-2 Years	3-4 Years	5-7 Years
1	Convenience of calling cards is stimulating revenues	High	Medium	Medium
2	Easy to remember calling card codes stimulate revenues	High	Medium	Medium
3	The movement towards becoming a cashless society is fostering growth in the traditional industry	Medium	Medium	Medium
4	Service providers bundling card calling services	Medium	Medium	Medium
5	Card only pay phones increase the number of traditional subscribers	Medium	Medium	Medium
6	Consumers are using post-paid card calling in emergency situations	Medium	Medium	Low
7	Competitive pricing can compete for existing customer base	Medium	Low	Low
8	Recognizable brand name increases good will marketing value	Medium	Low	Low
9	Marketing efforts target college students	Low	Low	Low
10	Credit cards are eliminating surcharges	Low	Low	Low

Source: Frost & Sullivan

MARKET DRIVERS

Convenience of Calling Cards Is Stimulating Revenues

Calling cards are extremely convenient for customers frequently away from the home or office. U.S. consumers have become increasingly mobile while demanding greater productivity and ease of use from their communication services. Frequent users of traditional calling cards do not need to worry about carrying a physical card with them. They simply need to memorize their access code, typically the telephone number on the account the card is connected to, and their PIN.

Easy to Remember Calling Card Codes Stimulate Revenues

Service providers that have easy to remember calling codes for their cardholders will increase their sales. For example, AT&T's code is 1-800 Call ATT. After this number is dialed, the consumer enters the number they wish to call followed by their calling card number. The

customer's calling card is typically their home phone number followed by a four-digit PIN number. Hence, it is easy for the consumer to remember if they are not carrying the card. Subsequently, sales are being driven.

The Movement Towards Becoming a Cashless Society Is Fostering Growth in the Traditional Industry

Each year the number of cash or check transactions in the U.S. decreases as consumers become more comfortable with electronic/card based currency. The acceptance of debit cards and installation of card reading equipment at many retail outlets has facilitated this change. Only five to ten years ago, most Americans would have scoffed at the idea of using a card at the local grocery store; today it is a daily occurrence. With consumers carrying less cash, in general, having the correct coinage for a pay telephone is also less likely which will push consumers to utilize card calling.

Service Providers Bundling Card Calling Services

Most telecommunication service providers offer bundled services that consist of multiple services on one bill with one point of contact. Many customers enjoy the convenience of having all telecommunications services on one bill, and being able to dial one number for any service inquiry. Also, rates for using cards bundled with other services is generally lower than stand-alone post-pay card products. These factors increase the number of users through cross marketing efforts, attracting consumers who would not use a calling card as a stand-alone product. This enhances revenue production in the market.

Card Only Pay Phones Increase the Number of Traditional Subscribers

Many LECs such as GTE and Ameritech have installed traditional card only pay phones for their calling card customers, typically at airports, train and bus terminals, and truck stops. The "card only" telephones make using the proprietary phone card extremely easy as the customer only need slide the magnetic strip of the card through a reader, making dialing lengthy 1-800 numbers transparent. For frequent travelers, short on time between stops, this added convenience will draw them to traditional card calling over other calling options.

Consumers Are Using Post-Paid Card Calling in Emergency Situations

Consumers can use their credit card or a traditional card for emergency situations. This particularly applies to infrequent travelers who are not familiar with making calls from transient locations and have not previously arranged card calling options such as wireless or prepaid cards. But, most people carry a credit card for purchases or may carry a traditional card that was bundled with their residential service which they can use this for infrequent emergencies.

Competitive Pricing Can Compete for Existing Customer Base

As credit card calling segment companies decrease their prices to remain competitive they will remain below customer's perceived switching cost threshold. This will help retain those consumers currently using credit cards for card calling and new customers to use the products.

Recognizable Brand Name Increases Good Will Marketing Value

The market leaders in this segment have tremendous consumer brand awareness. In a situation where a customer is committing to a transaction without physical, face-to-face contact with a company representative this goodwill is very important. With the prevalence of fraudulent activity in the card calling market deterring some consumers, brand awareness and goodwill in the credit card segment are strong market drivers.

Marketing Efforts Target College Students

Credit card companies are increasing their calling card revenues by targeting college students. College students use long distance more than many other demographic segment and, in many instances, are forced to use a pay telephone in their college housing.

Credit Cards Are Eliminating Surcharges

Major credit cards are eliminating surcharges and restructuring their pricing strategies. For example, American Express' Connection Card has eliminated a $.85 per call surcharge with a $.15 per minute charge for domestic U.S. calling and instituted a flat $.18 per minute with no surcharge. For credit card companies, card calling is a value-added feature to induce customers to carry the card. Therefore, credit card companies are willing to accept lower profit margins rather than aggravating customers with high per-call surcharges.

Market Restraints

Figure 5-2 presents the market restraints for the U.S. post-paid wireline card calling services market.

FIGURE 5-2

Post-Paid Wireline Card Calling Services Market: Market Restraints Ranked in Order of Impact (U.S.), 2000-2006

Rank	Restraint	1-2 Years	3-4 Years	5-7 Years
1	The falling prices of wireless services stifles growth	High	High	High
2	Prepaid card usage restrains the number of subscribers	High	High	High
3	U.S. national wireless plans substitute for post-paid card calling	High	High	High
4	Surcharges limit the utilization of traditional cards limiting revenues in the industry	High	Medium	Medium
5	Credit card companies are not actively promoting or advertising credit card calling	Medium	Medium	Medium
6	Low prices limit revenues	Medium	Medium	Medium
7	Access fees charged by pay phone owners limit revenues	Medium	Medium	Low
8	Consumer ignorance about credit card calling programs	Medium	Low	Low
9	High rate of default on traditional cards hinders revenues	Low	Low	Low
10	Calling card theft constrains revenues	Low	Low	Low

Source: Frost & Sullivan

The Falling Prices of Wireless Services Stifles Growth

The wireless industry is growing at a rapid pace. This tremendous growth can be attributed to the declining prices making these services more affordable to a broader segment of the market. In 1999, even people with a questionable credit history have the option of purchasing prepaid cellular or PCS service. Consequently, many people are subscribing to wireless services, limiting the revenues of traditional card calling services.

Prepaid Card Usage Restrains the Number of Subscribers

Many customers are starting to utilize prepaid cards rather than traditional cards. Prepaid cards are widely available in almost any retail location and are the fastest growing segment in the card calling market. Many consumers are carrying a prepaid card with them at all times, in case of emergencies. This eliminates the need to use a credit card to make calls during those times. Prepaid cards are also offer better per minute rates than traditional cards. Moreover, they enable callers to budget their telephone expenses. Consequently, the number of traditional subscribers is restrained.

U.S. National Wireless Plans Substitute for Post-Paid Card Calling

Major wireless carriers are offering national cellular or PCS plans to consumers who frequently travel. These plans eliminate costly roaming and long distance charges that have restrained wireless use for travelers in the past. A large percentage of card calling customers are travelers, thus the increasing substitution of wireless will restrain the market segment.

Surcharges Limit the Utilization of Traditional Cards Limiting Revenues in the Industry

Due to surcharges, many business and residential customers only use their calling cards in situations in which it is absolutely necessary. When using a calling card, the consumer typically incurs a surcharge of $0.30, in addition to the per minute rate. As a result, a one minute call can cost over $0.60. Therefore, people will opt to make a call on a regular wireline phone if one is available; restraining revenues in the industry.

Credit Card Companies Are Not Actively Promoting or Advertising Credit Card Calling

Most of the major companies in this segment are not actively promoting the card calling option they offer with their credit cards. Credit card companies have had to decrease prices and eliminate surcharges to remain competitive, squeezing profit margins. Also, many credit card companies do not have enough card-calling volume to make the business sector worth promoting.

Low Prices Limit Revenues

The per-minute charge of making a card call is decreasing drastically. The price of a traditional calling card minute is expected to be in the single digits by the year 2006. Calling card service providers must reduce their prices significantly in order to remain competitive with wireless services. In turn, revenues will be restrained.

Access Fees Charged by Pay Phone Owners Limit Revenues

Since October 1997, pay phone owners have been charging service providers an access fee of approximately $0.29 for the use of a calling card on their pay phone. The calling card service provider has the choice of absorbing the cost or passing it on to the customer. All major participants in the market have chosen to pass the access fee directly to the customer. This is particularly restraining on traditional card calling for local calls from pay telephones. Customers are more likely to simply pay the $.35 cash for a local pay telephone call once they realize they will be paying $.29 in addition to calling card charges.

Low Consumer Awareness

Many consumers are unaware of the new pricing strategies many credit card companies have instituted and assume credit card calling is very costly. If consumers were aware that most of the previous surcharges are now eliminated and the call price per minute is in relative parity

to other similar telecommunication services, revenues would increase. But currently, the lack of consumer awareness restrains the market segment.

High Rate of Default on Traditional Cards Hinders Revenues

A high rate of default exists in the traditional calling card services market. This is due to the fact that many people do not pay the charges for which they are billed. This is causing long distance companies to lose millions of dollars every year. Consequently, card issuers are forced to terminate thousands of cards annually and absorb the unpaid bills, causing service providers to lose potential revenues.

Calling Card Theft Constrains Revenues

There have been many cases of calling card theft within the United States. People known as "shoulder surfers" try to steal calling card customers' card numbers through eavesdropping or using binoculars to watch which buttons the customer pushes when making a call at a public pay phone. Therefore, revenues are being restrained as a result of theft.

MARKET FORECASTS

Figure 5-3 and Chart 5.2 present the market revenue forecast for U.S. post-paid wireline card calling markets.

FIGURE 5-3

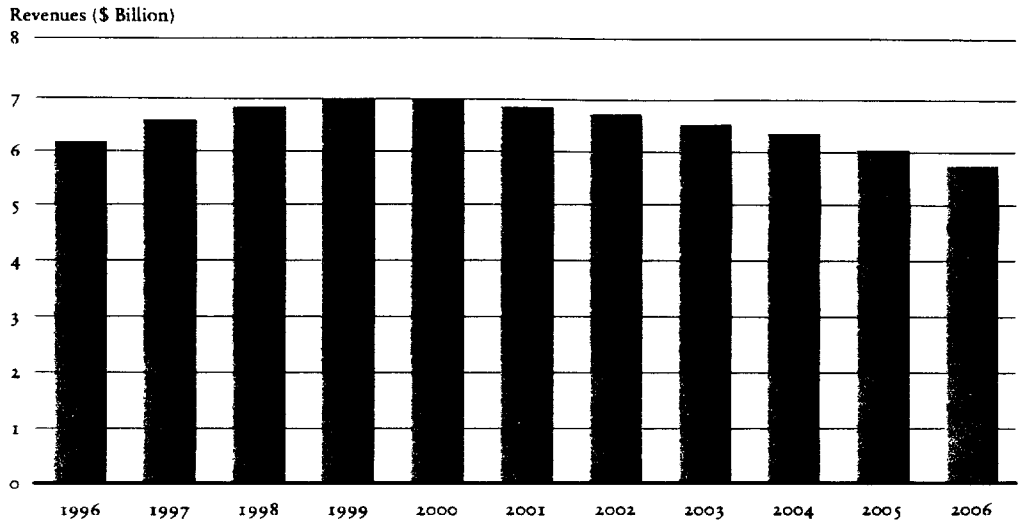
Post-Paid Wireline Card Calling Market: Revenue Forecasts (U.S.), 1996-2006

Year	Revenues ($ Billion)	Revenue Growth Rate (%)
1996	6.17	---
1997	6.59	6.8
1998	6.84	3.9
1999	7.00	2.4
2000	6.99	(0.1)
2001	6.85	(2.1)
2002	6.72	(1.9)
2003	6.53	(2.8)
2004	6.34	(2.9)
2005	6.03	(4.9)
2006	5.73	(5.0)
Compound Annual Growth Rate (1999-2006): (2.5)%		

Note: All figures are rounded; the base year is 1999. Source: Frost & Sullivan

CHART 5.2

Post-Paid Wireline Card Calling Market: Revenue Forecasts (U.S.), 1996-2006



Note: All figures are rounded; the base year is 1999. Source: Frost & Sullivan

The U.S. post-paid wireline card calling market grew slowly to $7.00 billion in 1999. The market growth rate has been steadily declining, and Frost & Sullivan is forecasting the market revenue to decrease from 2000 to 2006.

Market revenue growth in 1999 is primarily due to increase in retail price points by major market companies to compensate for volume loss. A secondary factor contributing to growth in 1999 is the restructuring of credit card calling plans to eliminate the high surcharges that credit cards have historically charged end users.

Revenues will shrink at a compound annual growth rate of (2.5) percent over the forecast period. The primary factor for negative market revenue growth will be due to a migration of end users to wireless telephony for transient communication needs. Wireless is a direct substitute for post-paid wireline card calling and will continue to acquire revenue from the market.

DEMAND ANALYSIS

Figure 5-4 presents the market unit demand forecast for U.S. post-paid wireline card calling markets.

The U.S. post-paid wireline card calling market had a volume of 14.29 billion minutes of usage charged in 1999. This is up 0.3 percent from 1998 and the trend is expected to be relatively flat throughout the forecast period.

FIGURE 5-4

Post-Paid Wireline Card Calling Market: Minute Forecasts (U.S.), 1996-2006

Year	Minutes ($ Billion)	Minute Growth Rate (%)
1996	13.12	---
1997	13.72	4.6
1998	14.25	3.9
1999	14.29	0.3
2000	13.99	(2.1)
2001	13.83	(1.1)
2002	13.71	(0.9)
2003	13.60	(0.8)
2004	13.49	(0.8)
2005	13.40	(0.7)
2006	13.32	(0.6)
Compound Annual Growth Rate (1999-2006): (0.9)%		

Note: All figures are rounded; the base year is 1999. Source: Frost & Sullivan

Frost & Sullivan is forecasting a compound annual growth rate of negative 0.9 percent for 1999 to 2006. In 2000, the market demand is expected to decline by 2.1 percent, mainly due to price increases implemented by major market participants in the latter part of 1999.

Residual users will sustain demand over the forecast period and marketing efforts by major participants focusing on clarity, reliability, and convenience, but not price competition with substitute products.

OTHER MARKET AND TECHNOLOGY TRENDS

Trends by Product Type

Figure 5-5 presents the Percent of Revenues by product type for the post-paid wireline card calling services market.

Revenue for post-paid card calling services charged through credit cards will remain a small part of the overall post-paid market with traditional cards dominating the market. Revenues for credit card calling in 1999 totaled $278 million or 4.1 percent of the market.

FIGURE 5-5

Post-paid Wireline Card Calling Market: Percent of Revenues by Product Type (U.S.), 1999-2006

Year	Traditional (%)	Credit Card (%)
1999	95.9	4.1
2000	96.0	4.0
2001	96.2	3.8
2002	96.2	3.8
2003	96.3	3.7
2004	96.4	3.6
2005	96.4	3.6
2006	96.4	3.6

Note: All figures are rounded; the base year is 1999. Source: Frost & Sullivan

Credit card usage will decline slightly during the forecast period to 3.6 percent of the total post-paid market in 2006. This slight decline will be mainly due to increased use of prepaid cards in emergency situations; the primary use of credit card calling presently. Because this slight decline is compounded by the decline in revenues in the total post-paid market, revenues for credit card calling will decline to $206 million by 2006.

Major credit card companies, such as American Express, have began outsourcing their card calling features to telcos and are not anticipating that the service will be a major profit center. This is in response to consumer complaints about service and high surcharges previously charged. Frost & Sullivan is forecasting that credit card companies will continue the service for the foreseeable future as a convenience to customers, but will not actively promote the service.

Trends by Distribution Channel

Figure 5-6 presents the distribution channel trends for the U.S. post-paid wireline card calling services market.

FIGURE 5-6

Post-Paid Wireline Card Calling Market: Market Distribution Channel Trends Ranked by Volume Sold at Retail (U.S.), 2000-2006

Rank	Distribution Channel	1-2 Years	3-4 Years	5-7 Years
1	Bundled with residential	High	High	High
2	Bundled with business account	Medium	Low	Low
3	Stand-alone (consumer)	Medium	Medium	Medium
4	Credit card	Medium	Low	Low
5	Stand-alone (business)	Low	Low	Low

Source: Frost & Sullivan

BUNDLED WITH RESIDENTIAL

This is a major distribution channel for the market and should continue throughout the forecast period. Consumers are given a lower per minute rate for card calling when it is bundled with other residential services. In addition, card calls will be billed on a consumer's regular toll telephone bill from a company consumers are comfortable using.

BUNDLED WITH BUSINESS ACCOUNT

Employees of a company can be issued calling cards if they are mobile workers. This distribution channel is under great pressure from wireless telephony and other communication technology, for example, email and paging.

STAND-ALONE (CONSUMER)

The market will experience an increase of lower priced stand-alone products from resellers and VoIP based companies toward the end of the forecast period. These companies typically market their products over the Internet or directly to consumers.

CREDIT CARD

Even though credit card calling has been a major distribution channel for post-paid card calling minutes of use in the past, this trend has been significantly restrained. Credit card calling will be used by those relatively few consumers who do not use wireless, prepaid, or traditional card calling. These consumers are most likely, infrequent transient telephony users. Thus, the revenues for credit card will be very limited.

STAND-ALONE (BUSINESS)

Businesses will be reluctant to utilize a stand-alone card from a smaller company. This, combined with prepaid and wireless business use, will restrict the volume though this distribution channel.

Trends by Use

Figure 5-7 presents consumer use trends for the U.S. post-paid wireline card calling market.

FIGURE 5-7

Post-Paid Wireline Card Calling Market: Consumer Use Trends Ranked by Volume Used (U.S.), 2000-2006

Rank	Consumer Use	1-2 Years	3-4 Years	5-7 Years
1	Hospitality (consumer)	High	Medium	Medium
2	Hospitality (business)	Medium	Medium	Medium
3	Pay telephone (consumer)	Medium	Low	Low
4	Pay telephone (business)	Low	Low	Low

Source: Frost & Sullivan

HOSPITALITY (CONSUMER)

Many motels, hotels, and inns have a high surcharge for local and toll calls from their rooms. This is a place where many consumers' would rather use a calling card than wireless product because the quality is higher and the telephone is in the room.

HOSPITALITY (BUSINESS)

Businesses want employees to save money as much as possible. This can include using card calling from hospitality locations instead of charging toll calls to the room bill.

PAY TELEPHONE (CONSUMER)

Pay telephones have been the typical use for traditional cards, which is being substituted by wireless telephony. The typical use for payphone card calling is the airport or other transient location, many of which have card only pay phones that make using post pay cards much more convenient.

PAY TELEPHONE (BUSINESS)

Wireless telephony, wireless email, and paging have severely limited the business use of post-pay cards at pay telephones. Thus, this use will have low minute volume over the forecast period.

Pricing Strategy and Trend Analysis

Figure 5-8 presents the pricing trends for the U.S. post-paid wireline card calling market.

FIGURE 5-8

Post-Paid Wireline Prepaid Card Calling: Market Per Minute Price Point Forecast—U.S. Origination, Domestic, and International (U.S.), 1999-2006

Year	Retail Price Per Minute Before Surcharges and Fees ($)	Retail Price Per Minute After Surcharges and Fees ($)
1999	0.461	0.490
2000	0.500	0.471
2001	0.495	0.465
2002	0.489	0.461
2003	0.480	0.452
2004	0.471	0.442
2005	0.449	0.423
2006	0.431	0.404

Note: All figures are rounded; the base year is 1999. Source: Frost & Sullivan

Major companies in the market have raised per minute prices in the latter part of the base year. This increase will be reflected in the average price per minute in 2000. This increase was implemented to compensate for negative growth demand in the market. This strategy indicates that market participants are not competing on price points, but on other marketing factors.

The price per minute increases are not expected to continue however. Due to increasing price pressure from prepaid card calling and wireless telephony, per minute prices in the post-paid market are expected to experience a slight decline in the near term. These forces should increase at approximately 2003, forcing larger declines in prices. By 2006, Frost & Sullivan is forecasting a price per minute at an estimated $0.43 per minute. This is a relatively conservative estimate and the price per minute could significantly decrease depending on market factors.

Some proprietary card products have re-instituted a per call surcharge after discontinuing the practice of years ago. This strategy is another attempt to bolster revenues while demand declines. Frost & Sullivan expects per call surcharges to remain a significant part of the pricing mix during the forecast period because this strategy allows market participants to maintain low per minute price points while increasing revenue per call.

Competitive Structure

The competitive structure of the post-paid card calling services market can be seen in Figure 5-9. There were over 300 companies in the market in 1999. Traditional card providers include: long distance carriers, LECs, CLECs, and RBOCs. The major participants in the market were AT&T, Sprint, and MCI WorldCom. Together, these three companies held over 80 percent of the revenues in the market. The second tier of competition was extremely fragmented.

FIGURE 5-9

Post-Paid Wireline Card Calling: Competitive Structure (U.S.), 1999

Number of Companies in the Market	Over 400 companies
Types of Competitors	IXCs, ILECs, CLECs, RBOCS, Credit Card
Distribution Structure	Large percentage though direct channels Credit card channel (as feature of credit card) Inbound sales
Tiers of Competition	First tier: Highly concentrated in first tier. Participants are AT&T, MCIWorldCom, and Sprint Second tier: Fragmented among remaining players in the market.
Key End-User Groups	Business travelers, mobile residential consumers.
Competitive Factors	Brand name recognition, price, value added features, surcharges.

Source: Frost & Sullivan

COMPETITIVE MARKET SHARE ANALYSIS

Figure 5-10 and Chart 5.3 show the market trends for the U.S. post-paid card calling services market.

In 1999, AT&T held the largest market share in the industry, generating 58 percent of the revenues. This market share is down from 63 percent for 1998. Both Sprint and MCIWorldCom also held slightly less market share compared to 1998. Smaller calling card service providers acquired the lost market share of the industry leaders due to lower rates and increased marketing efforts.

Many of the smaller market participants used stand-alone post-paid products with competitive pricing to increase market share. In addition, some of the credit requirements for these stand-alone products were less stringent than for the major participant's bundled services.